



United States
Environmental Protection Agency

Air and Radiation
Stratospheric Protection Division
6205T

Foam Sector Substitutes under SNAP as of October 21, 2014
SNAP Information: <http://www.epa.gov/ozone/snap>

EPA has created the Significant New Alternatives Policy (SNAP) Program under section 612 of the Clean Air Act Amendments. SNAP evaluates alternatives to ozone-depleting substances. Substitutes are reviewed on the basis of ozone depletion potential, global warming potential, toxicity, flammability, and exposure potential as described in the March 18, 1994 final SNAP rule (59 FR 13044). Lists of acceptable and unacceptable substitutes will be updated periodically in the Federal Register. The following SNAP notices and subsequent final rules are included in this list: August 26, 1994 (59 FR 44240), January 13, 1995 (60 FR 3318), June 13, 1995 (60 FR 31092), July 28, 1995 (60 FR 38729), February 8, 1996 (61 FR 4736), May 22, 1996 (61 FR 25585), September 5, 1996 (61 FR 47012), October 16, 1996 (61 FR 54030), March 10, 1997 (62 FR 10700), June 3, 1997 (62 FR 30275), February 24, 1998 (63 FR 9151), May 22, 1998 (63 FR 28251), January 26, 1999 (64 FR 3861), April 28, 1999 (64 FR 22981), June 8, 1999 (64 FR 30410), December 6, 1999 (64 FR 68039), April 11, 2000 (65 FR 19327), June 19, 2000 (65 FR 37900), December 18, 2000 (65 FR 78977), July 22, 2002 (67 FR 47703), August 21, 2003 (68 FR 50533), September 30, 2004 (69 FR 58269), October 1, 2004 (69 FR 58903), September 28, 2006 (71 FR 56884), March 28, 2007 (72 FR 14432), January 2, 2009 (74 FR 21), September 30, 2009 (74 FR 50129), June 16, 2010 (75 FR 34017), August 10, 2012 (77 FR 47768), May 17, 2013 (78 FR 29034), and October 21, 2014 (79 FR 62863).

**Table 1. ACCEPTABLE Substitutes for CFC Foams Under the
Significant New Alternatives Policy (SNAP) Program as of October 21, 2014**

Substitute	Rigid Polyurethane & Polyisocyanurate Laminated Boardstock	Rigid Polyurethane, Appliance ¹	Rigid Polyurethane, Spray, Commercial Refrigeration & Sandwich Panels ¹	Rigid Polyurethane, Slabstock ¹	Polystyrene, Extruded Boardstock & Billet	Phenolic Insulation Board & Bunstock	Flexible Polyurethane	Integral Skin Polyurethane ¹	Polystyrene, Extruded Sheet	Polyolefin ²
HCFC-123										
HCFC-142b										
HCFC-22										
HCFC-141b / HCFC-123 Blends										
HCFC-22 / HCFC-142b Blends										
HCFC-22 / Saturated Light Hydrocarbons C3-C6 Blends										

NOTE:

1. - Acceptability listings include blends of acceptable substitutes in these end-uses.

2. - Under the Section 610 Non-Essential Use Ban, the sale and distribution or offer for sale and distribution of polyolefin foam manufactured with HCFCs is banned except for closed cell rigid polyethylene foam when such foam is suitable in shape, thickness and design to be used as a product that provides insulation around pipes used in heating, plumbing, refrigeration, or industrial process systems. Under EPA's phaseout regulations implementing Section 605(a), virgin HCFC-22 and HCFC-142b may no longer be used as foam blowing agents as of January 1, 2010.

 =Acceptable

**Table 1. ACCEPTABLE Substitutes for CFC Foams Under the
Significant New Alternatives Policy (SNAP) Program as of October 21, 2014 (CONTINUED)**

Substitute	Rigid Polyurethane & Polyisocyanurate Laminated Boardstock	Rigid Polyurethane, Appliance ¹	Rigid Polyurethane, Spray, Commercial Refrigeration & Sandwich Panels ¹	Rigid Polyurethane, Slabstock ¹	Polystyrene, Extruded Boardstock & Billet	Phenolic Insulation Board & Bunstock	Flexible Polyurethane	Integral Skin Polyurethane ¹	Polystyrene, Extruded Sheet	Polyolefin
Formic Acid										
Saturated Light Hydrocarbons C3-C6										
HFC-134a										
HFC-152a										
HFC-143a										
HFC-245fa										
HFO-1234ze										
2-Chloropropane										
HFO-1336mzz(Z)										
Electroset Technology										
Carbon Dioxide										
Vacuum Panels										
Methylene Chloride										
Acetone										
AB Technology										
Ecomate										
HFC-152a/Saturated Light Hydrocarbon Blends										
Methyl Formate										
<i>Trans</i> -1-chloro-3,3,3-trifluoroprop-1-ene (Solstice™ LBA)										

NOTES:

1. - Acceptability listings include blends of acceptable substitutes in these end-uses.

2. - Under the Section 610 Non-Essential Use Ban, the sale and distribution or offer

for sale and distribution of polyolefin foam manufactured with HCFCs is banned except for closed cell rigid polyethylene foam when such foam is suitable in shape, thickness and design to be used as a product that provides insulation around pipes used in heating, plumbing, refrigeration, or industrial process systems. Under EPA's phaseout regulations implementing



=Acceptable



=Acceptable in commercial refrigeration and sandwich panels, not in spray foam

Section 605(a), virgin HCFC-22 and HCFC-142b may no longer be used as foam blowing agents as of January 1, 2010.

**Table 2. UNACCEPTABLE Substitutes for CFC Foams Under the
Significant New Alternatives Policy (SNAP) Program as of October 21, 2014**

Substitute	End-Use	Reason
HCFC-141b	Polyolefin	HCFC-141b has an ODP of 0.11, almost equivalent to that of methyl chloroform, a Class I substance. The Agency believes that non-ODP alternatives are sufficiently available to render the use of HCFC-141b unnecessary in polyolefin foams.
HCFC-124	All	Alternatives exist with lower or zero-ODP.
HCFC-141b	All	
HCFC-22; HCFC-142b	Rigid polyurethane and polyisocyanurate laminated boardstock; Rigid polyurethane appliance; Rigid polyurethane spray and commercial refrigeration, and sandwich panels; Rigid polyurethane slabstock and other foams; Polystyrene extruded insulation boardstock and billet ¹ ; Phenolic insulation board and bunstock; flexible polyurethane; Polystyrene extruded sheet	Alternatives exist with lower or zero-ODP.

1. - For existing users of HCFC-22 and HCFC-142b in polystyrene extruded insulation boardstock and billet and the other foam end uses (rigid polyurethane and polyisocyanurate laminated boardstock; rigid polyurethane appliance; phenolic insulation board and bunstock; flexible polyurethane; and polystyrene extruded sheet), as of November 4, 2005, the unacceptability determination is effective on January 1, 2010.

<p>Table 3. ACCEPTABLE Substitutes for HCFC Foams Under the Significant New Alternatives Policy (SNAP) Program as of October 21, 2014</p>	
<p>1. Product</p>	<p>2. Substitute</p>
<p>3. Comments</p>	<p>4. Notes</p>
<p>5. Additional Information</p>	<p>6. Additional Information</p>

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Table 3. ACCEPTABLE Substitutes for HCFC Foams Under the Significant New Alternatives Policy (SNAP) Program as of October 21, 2014

Substitute	Rigid Polyurethane & Polyisocyanurate Laminated Boardstock	Rigid Polyurethane, Appliance ¹	Rigid Polyurethane, Spray, Commercial Ref& Sandwich Panels ¹	Rigid Polyurethane, Slabstock ¹	Polystyrene, Extruded Boardstock & Billet	Phenolic Insulation Board & Bunstock	Integral Skin Polyurethane ^{1, 2}	Polystyrene, Extruded Sheet	Flexible Polyurethane	Polyolefin ³
Blends of HFC-365mfc and at least 5% HFC-245fa										
Commercial blends containing 7% to 13% HFC-227ea and the remainder HFC-365mfc										
Ecomate										
Formacel B										
Formacel TI										
Formacel Z-6										
HFC-152a/Saturated Light Hydrocarbon Blends										
Electroset technology										
Transcend™ Technologies ⁴										
Trans-1-chloro-3,3,3-trifluoro-prop-1-ene (Solstice™ LBA)										

NOTES:



=Acceptable



=Acceptable in Commercial Refrigeration and Sandwich Panels, not in Spray Foam



=Acceptable in Spray Foam, not in Commercial Refrigeration or Sandwich Panels

1. - Acceptability listings include blends of acceptable substitutes in these end-uses.

2. - Under the Section 610 Non-Essential Use Ban, the sale and distribution of integral skin foam manufactured with HCFCs (with the exception of auto safety foam) was banned as of January 1, 1994. HCFCs were banned from auto safety integral skin foam effective January 1, 1996.

3. - Under the Section 610 Non-Essential Use Ban, the sale and distribution or offer for sale and distribution of polyolefin foam manufactured with HCFCs is banned except for closed cell rigid polyethylene foam when such foam is suitable in shape, thickness and design to be used as a product that provides insulation around pipes used in heating, plumbing, refrigeration, or industrial process systems. Under EPA's phaseout regulations implementing Section 605(a), virgin HCFC-22 and HCFC-142b may no longer be used as foam blowing agents as of January 1, 2010.

4. - As an additive to SNAP-approved blowing agents in blends making up to 5% by weight of the total foam formulation.

**Table 4. UNACCEPTABLE Substitutes for HCFC Foams Under the
Significant New Alternatives Policy (SNAP) Program as of October 21, 2014**

Substitute	End-Use(s)	Reason
HCFC-22, HCFC-142b, or blends thereof	Rigid Polyurethane or Polyisocyanurate Boardstock, Appliance, Spray foams	Alternatives exist with lower or zero-ODP.
HCFC-124	All	Alternatives exist with lower or zero-ODP.
HCFC-22, HCFC-142b, or blends thereof	Rigid Polyurethane Commercial Refrigeration, Sandwich Panels, Slabstock and Other foams ¹	Alternatives exist with lower or zero-ODP.

1. - For existing users of HCFC-22 and HCFC-142b as of November 4, 2005 other than in marine applications, the unacceptability determination is effective on March 1, 2008; for existing users of HCFC-22 and HCFC-142b as of November 4, 2005 in marine applications, including marine flotation foam, the unacceptability determination is effective on September 1, 2009. For an existing user of HCFC-22 or HCFC-142b that currently operates in only one facility that it does not own, and is scheduled to transition to a non-ODS, flammable alternative to coincide with a move to a new facility and installation of new process equipment that cannot be completed by March 1, 2008, the unacceptability determination is effective January 1, 2010.